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HOW IMPORTANT IS COLLABORATION TOWARD THE EFFECTIVENESS OF A VIRTUAL TEAM?

William Liman[1] & Rita Markus Idulfilastri[2]

[1]Faculty of Psychology, University Tarumanagara Jakarta
[2]Faculty of Psychology, University Tarumanagara Jakarta
Email: ritamarkus@fpsi.untar.ac.id

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ABSTRACT

The formation of a virtual team during the COVID-19 pandemic was forced and forced by circumstances. It turns out that many problems occur, digital stress, employee performance being less productive, employees leaving because of excessive workloads, and so on. On top of this basic phenomenon, the question arises of how virtual teams work with the help of technology. To address this, a hypothesis is developed based on the role of collaboration as a knowledge sharing mediator in virtual team effectiveness. A sample of 60 employees who work online or a mix of online and offline and in their offices are required to share information. The data processing technique uses the bootstrap method with the PROCESS program. The results obtained, knowledge sharing and collaboration together affect the effectiveness of the virtual team, the value of r = 0.262, significant (p-value < 0.05) and contributes 52.2%. The confidence interval value of LLCI and UPCI between 0.040 – 0.484 indicates a reliable 95% correct result. The study's conclusion is that collaboration works as a mediator in the relationship between knowledge sharing and virtual team effectiveness.

Keywords: *Collaboration, knowledge sharing, virtual team*

1. PREFACE

As technology advances, the collaboration between companies from various countries with different time zones and geographies requires teams to work together virtually. This means that the team no longer works face to face, but uses technology media to discuss, solve problems, provide feedback, ideas, and various other activities, called virtual teams. Due to the COVID-19 pandemic, with restrictions on gathering, the work team was forced to turn into a virtual team. The move to become a virtual team in a short time, the possibility of resistance and obstacles from the side of the organization, work team, and individual. According to the findings of the researchers, many employees left their jobs during the COVID-19 pandemic because the workload became too heavy; experiencing stress due to the use of technology, known as digital stress; the company becomes less productive, the company's response to consumers slows down and many other things. With this condition, the question arises whether the virtual team that runs the company's operations is working effectively or becoming less effective.

According to Kilcullen [1], the virtual team formed during the COVID-19 pandemic is a team that is experiencing a rapid transition period, most likely with minimal preparation. Thus, it is necessary to immediately reorganize the company at the organizational, team, and individual levels. At the organizational level, it is necessary to review organizational norms or rules and monitor performance; at the team level, it is necessary to examine leadership and support mechanisms; on an individual level regarding communication and flexibility.

At the outset of the virtual team, organizations should create team norms with team members. Established norms that strengthen collaboration and reviewed norms that have expired. Setting expectations for how teams will inform, cooperate, and make choices collectively are all part of

virtual teamwork norms [2]. Another recommended norm in virtual teams is that everyone has the opportunity to digest and respond within 48 hours [3]. In addition, organizations must frequently monitor performance and provide feedback. Use technology, such as video conferencing, to provide fast response whenever practical. 360-degree feedback, which includes comments from supervisors, coworkers, subordinates, and clients/ customers, is especially recommended [4].

To quickly build strategies to act as change agents, strengthen team norms, and manage team member performance procedures, virtual team leaders must participate in training. Leaders play a critical role in the formation, development, and performance of teams. Leaders have the most power over the team's cultural atmosphere [5], which includes the team's values, assumptions, and conventions. The leader establishes the team's values at the outset, and the leader has the most power over the group to act as a cultural change agent if the team's values, assumptions, or norms need to be altered [6].

Implement a support system that is to provide a psychologically safe environment to better manage virtual teamwork. When team members work from home and use video conferencing, the videos can expose details about a person's life that would otherwise be kept private. According to him, studies show that virtual team members debate cultural differences freely and come to an agreement on a variety of acceptable actions [7]. This discourse should include both parties talking about the team's work and values, as well as individual members of the team. As a result, it's critical to emphasize that such discussions can take place in a psychologically secure setting. It's worth noting that virtual team failure is caused by a sensation of anxiety in a psychologically unsettling environment [8]. As a result, virtual team management through supportive measures should not be overlooked.

The frequency, quality, timeliness, and content of messages are all the responsibility of each member of the virtual team. Communication is a responsibility that has been highlighted as the success of virtual teams [9]; [10]. Communication has been linked to improved team performance in a variety of circumstances [11]. Communication may also be utilized to create and maintain trust in virtual teams [12], therefore team members should contact with one another on a frequent basis. In general, virtual team communication should be improved to determine if team members' workloads are suitable, ensure team members' well-being, and aid performance [10]. To support adaptation to changing situations, virtual teams must maintain flexibility. The occurrence of adjustments to working schedules and meetings may be a source of potential work-life conflicts.

With little help or advice, businesses try to form productive virtual work teams. In order to address this demand, research has recently begun to focus on the difficulties of quickly forming virtual teams during COVID-19. As a result, employees struggle with personal issues such as motivation, anxiety, and participation [13].

According to Blok, Groenesteijn, Schelvis & Vink [14], a team is a group of people who have the same goals or objectives and interact with each other to manage the organization. Unlike conventional teams, virtual teams can be dispersed across organizations, spaces, and times that are often cross-functional. As a result, this team has a low frequency of face-to-face meetings and must be able to collaborate using computers and emerging technologies. Computer-based communication technology is virtually always used to facilitate virtual team interactions. Work routines, decision-making, and interpersonal relationships are all affected by this communication. As a result, managing a virtual team differs from managing a face-to-face team and is more difficult (traditional team). Virtual teams, on the other hand, are still groupings of people that share

many of the same traits and dynamics as traditional teams. Understanding the basic concepts of team dynamics, regardless of changes in time, place, virtual or face-to-face work environments, will help you manage virtual teams more effectively.

A virtual team is defined as a group that collaborates beyond place, time, and organizational boundaries using computer technology [15]. Members of a virtual team may be spread across cities in the same country or around the world, and they may only meet in person on rare occasions. A virtual team, according to Berry [16], is a geographically distributed collection of individuals and/or companies who collaborate to achieve organizational tasks utilizing a combination of telecommunications and information technology. Although some team members may prefer face-to-face communication, geographically separated teams frequently have no choice except to connect digitally. If examined further, virtual teams have six attributes [17]: (a) Teams do not always have a certain membership. Team members are aware of shared membership, and the team remains cohesive even if membership varies somewhat. (b) Team members work together to achieve a common purpose, which is either assigned to the team or determined by the team itself. (c) The outcomes are shared among the team members. (d) Members of the team work together to manage relationships across organizational boundaries. (e) Team members are distributed across the country. (f) Team members execute their responsibilities mostly through computer-based communication rather than face-to-face discussion. The effectiveness of the virtual team referred to in this study is how well the virtual team formed in achieving the team's goals was formed [15].

Knowledge sharing is conceptualized using the definition from Van Den Hooff & Ridder and explained by Vasarhelyi [18], knowledge sharing entails the voluntary exchange of knowledge between persons through the act of transmitting knowledge of what they know. The act of communicating one's intellectual capital to others is known as sharing knowledge [19]. Employees communicate experiences, thoughts, skills, and knowledge linked to their work in a bidirectional manner to develop and modify knowledge into new contexts. Thus, the process of individuals transferring knowledge, both implicitly and overtly, and collaboratively developing new knowledge by involving two fundamental processes, namely contributing knowledge and collecting knowledge, is known as knowledge sharing.

Knowledge sharing, according to Yossif Noaman & Fouad [20], is a socio-cultural interaction including the exchange of staff knowledge, experience, and abilities across all departments or organizations. He said the knowledge sharing construct was measured through the dimensions of contributing knowledge and the dimensions of knowledge gathering. Knowledge sharing occurs when organizational members share related information, ideas, proposals, and expertise with other employees, according to Yusof, Ismail, Ahmad, and Yusif [21]. As a result, knowledge sharing is the process of individuals exchanging (implicit and explicit) knowledge and working together to create new knowledge. Knowledge sharing, according to Ramayah, Yeap, and Ignatius [22], is the exchange of knowledge between at least two parties in a reciprocal process that permits knowledge to be re-formed and understood in different settings.

Collaboration in the workplace is defined by Assbeihat [23] as a mutually influential interaction between individuals, characterized by open and direct communication on dispute resolution, as well as support for innovation and experimentation. It is also explained that the impact of collaborative relationships on individual performance is usually not well documented, where high collaboration professionalism should lead to increased individual job satisfaction and performance. Although in practice collaboration does not affect performance directly, collaboration can affect performance as an intermediary variable. In a review of collaborative

research, the discussion is in the antecedent-process-outcome framework. Before collaboration occurs, there are certain conditions must be met. One example of the condition in question is connecting personal interests with common interests. After these conditions are met, then the collaboration process can run. The results of collaboration can be in the form of problem-solving, equalization of norms, or the formation of an agreement [24].

The virtual team formed at the research company was forced to occur due to the impetus of the COVID-19 pandemic situation. Alsharo, Gregg, and Ramirez [15] examined virtual teams that were formed from the start as virtual teams or not by force. This disparity motivates academics to investigate the critical role of collaboration in modulating the relationship between knowledge sharing and virtual team effectiveness. The efficiency of the virtual team in question is determined by whether it can perform as it should for the team's intended purpose.

Alsharo et al [15] found a favorable and significant association between knowledge sharing and cooperation on team effectiveness, with a p-value < 0.01. The results of the collaboration variable contribution are 49% and the team effectiveness variable is 50% in the research model. In addition, it was found that the collaboration variable mediates the relationship between daily knowledge and virtual teams ($R = 0.78$; $p < 0.01$).

Memah, Pio, & Kaparang [25] in their research explain that knowledge sharing can improve employee performance with a contribution of 38.7%. Therefore, the company is expected to pay more attention to the knowledge-sharing program to get better work results. About company performance, the knowledge possessed by employees is an organizational resource and is used, through individual skills or abilities in completing their work. Knowledge is an organizational asset in both tacit and explicit forms, and it should be viewed as a valuable resource that can help the business compete [26] [18].

Individuals produce knowledge individually, while teams create social knowledge through the interaction and collaboration of team members Alavi & Leidner [26]; individuals create knowledge independently, while teams create social knowledge through the interaction and collaboration of team members. Individual knowledge to social knowledge transformation is a difficult process that relies on employees' desire to contribute with $R (154) = 0.232$; $p < 0.01$ [27].

The goal of the study was to look into the importance of collaboration for virtual teams to be successful when knowledge is shared across team members. The effect of collaboration as a mediator on the relationship between knowledge sharing and virtual team effectiveness is the research hypothesis.

This study uses a non-experimental quantitative approach with cross-sectional data collection. Data were obtained by using the Virtual Team Effectiveness Questionnaire, Knowledge Sharing Questionnaire, Trust Questionnaire, and Collaboration Questionnaire. Dissemination of questionnaires online using google forms considering the condition of the COVID-19 pandemic. Participants who were sent the link were selected based on their work background and fulfillment of working online or a mixture of online and offline.

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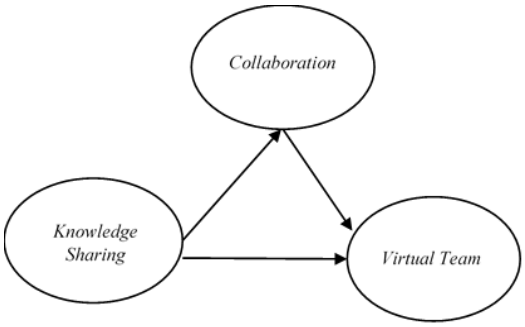
Figure 1
Knowledge Sharing Relationship with a Virtual Team Mediated by Collaboration



2. RESEARCH METHOD

Employees who are currently employed in Indonesia are the study's target group. The characteristics of the participants determined in this study were permanent employees of a company who carried out work from one place, not in the office or mixed work from the office and from somewhere, not in the office, and were willing to participate in online research data collection. The number of participants is 60 participants, with the following details:

Table 1
The Description of Subjects by Gender

Sex	Total	Percentage (%)
Man	20	33.3
Woman	40	66.7

Table 2
The Description of Subjects by Lengths of Work

Lengths of Work	Total	Percentage (%)
< 1 year	17	28.3
1 – 5 years	43	71.7

Table 3
The Description of Subjects Based on Working Online and Off-Line

Type of Work	Total	Percentage (%)
Online	14	23.3
Online & Offline	46	76.7

Table 4
The Description of Subject Based on the Necessity of Knowledge Sharing

Gender	Total	Percentage (%)
Yes	51	85
No	9	15

The test results of the measuring instrument were carried out on employees with active working status through the distribution of questionnaire links on social media. From the results of trials and revisions of the measuring instrument carried out, when the final questionnaire used had a Cronbach's Alpha reliability coefficient of 0.793 for a virtual team effectiveness measurement tool; 0.955 for the knowledge sharing questionnaire; and 0.731 for the collaboration questionnaire.

Thus, the measuring instrument has internal consistency among items with good criteria so that it can be continued for data collection.

The analysis technique uses the bootstrapping method with the PROCESS Procedure for SPSS Version 3.1 program. Processed at 95% Confidence Interval the expected error is only 5% and the number of bootstrap samples is 5000.

3. RESULT AND DISCUSSION

Data processing generates relationships with and without Collaboration moderators. In the relationship without a collaboration moderator, it can be proven that knowledge sharing can affect the effectiveness of virtual teams by r = 0.517 and significantly (p-value < 0.05). As well as contributing 44.7% to the effectiveness of the virtual team. The confidence interval value of LLCI and UPCI between 0.365 – 0.668 indicates that it does not cover the 0 limits, so the results obtained can be trusted 95% true. See Table 5.

Table 5

The Relationship between Knowledge Sharing Variable and Virtual Team without Collaboration as Mediator

Relationship	Coef	SE	t	p	LL CI	UL CI	R^2
Knowledge Sharing Virtual Team	0.517	0.076	6.840	0.000	0.365	0.668	0.447

Coef: coefficient; SE: Standard Error; t: t-value; p: probability; LLCI; Lower-Level Confident Interval; ULCI: Upper-Level Confident Interval; R^2: determinant.

With the collaboration mediator, knowledge sharing and collaboration together affect the effectiveness of the virtual team. This relationship with the value of r = 0.262, significant (p-value < 0.05). And contributed 52.2%. The confidence interval value of LLCI and UPCI between 0.040 – 0.484 indicates that it does not include a value of 0 so the results obtained can be trusted 95% true.

This relationship can occur because the Collaboration mediator variable has a relationship of r = 0.314, significant (p-value < 0.05) on the effectiveness of the virtual team. The confidence interval value of LLCI and UPCI between 0.104 – 0.522 indicates that it does not include a value of 0 so the results obtained can be trusted 95% true (See Table 6).

Table 6

The Relationship between Knowledge Sharing Variable and Virtual Team with Collaboration as Mediator

Relationship	Coef	SE	t	p	LL CI	UL CI	R^2
Knowledge Sharing & Collaboration Virtual Team	0.262	0.111	2.362	0.022	0.040	0.484	0.522
Collaboration Virtual Team	0.314	0.195	2.991	0.004	0.104	0.522	

The results obtained are in line with the results of Alsharo et al [15] which shows the relationship between knowledge sharing and collaboration on virtual team effectiveness shows a positive and significant relationship at p-value < 0.01. The results of this study obtained a contribution of 52%, while the research of Alsharo et al (2017) was 49%. It should be understood that Alsharo et al's research was conducted before the COVID-19 pandemic. In conclusion, while it can be said that

during the COVID-19 pandemic, virtual teams have become more effective because of stronger collaboration.
According to Kilcullen [1], the virtual team formed during the COVID-19 pandemic is a team that is experiencing a rapid transition period, most likely with minimal preparation. There is strong collaboration as the company sets the norms/rules that team members follow at the start of the virtual team. In other words, the awareness of every team member so that the virtual team can run effectively. The norm of virtual collaboration, according to Bates (2020), contains expectations about how the team would inform, discuss, and make decisions jointly.

The reluctance of employees to share their knowledge has the potential to inhibit team collaboration [28]. Because of the diverse features and geographic locations of members, the conditions for this knowledge transformation process might be improved or decreased in virtual teams. Virtual team effectiveness has an effect on organizational structure [16] and poses challenges [29]. Virtual team members, for example, are spread throughout the globe, and they rely heavily on technology for communication and cooperation.

In the current pandemic, virtual teams need collaboration between parties to keep their performance effective. Collaboration itself is a keyword for companies that want to stay ahead in a competitive business environment. Memah et al [25] state that the best results between knowledge and performance effectiveness can only be obtained through collaboration between individuals, between units, and between functions. Assbeihat's [23] research also supports this, stating that there is a positive association between collaboration factors and team performance, where collaboration encompasses aspects of communication, trust, and team resources.

4. CONCLUSIONS AND RECOMMENDATIONS

Collaboration has been shown to have a mediating effect on the relationship between knowledge sharing and virtual team effectiveness. As a result, teamwork is critical to the success of a virtual team.

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